

STATE OF MISSISSIPPI

A REASSESSMENT OF

EMERGENCY MEDICAL SERVICES

April 20-22, 2004

National Highway Traffic
Safety Administration
Technical Assistance Team

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BACKGROUND

Injury is the leading cause of death for persons in the age group one through 44 as well as the most common cause of hospitalizations for persons under the age of 40. The financial costs of injuries are staggering: injuries cost billions of dollars in health care and social support resources. In 1995 for example, the lifetime costs of all injuries in the United States were estimated at \$260 billion annually. These estimates do not include the emotional burden resulting from the loss of a child or loved one, or the toll of severe disability on the injured person and his or her family. Each year over 40,000 people lose their lives on our nation's roads, and approximately 70 percent of those fatalities occur on rural highways. The National Highway Traffic Safety Administration (NHTSA) is charged with reducing accidental injury on the nation's highways. NHTSA has determined that it can best use its limited resources if its efforts are focused on assisting states with the development of integrated emergency medical services (EMS) programs that include comprehensive systems of trauma care.

To accomplish this goal, in 1988 NHTSA developed a Technical Assistance Team (TAT) approach that permitted states to utilize highway safety funds to support the technical evaluation of existing and proposed emergency medical services programs. Following the implementation of the Assessment Program, NHTSA developed a Reassessment Program to assist those states in measuring their progress since the original assessment. The Program remains a tool for states to use in evaluating their statewide EMS programs. The Reassessment Program follows the same logistical process, and uses the same ten component areas with updated standards. The standards now reflect current EMS philosophy and allow for the evolution into a comprehensive and integrated health management system, as identified in the 1996 *EMS Agenda for the Future*. NHTSA serves as a facilitator by assembling a team of technical experts who demonstrate expertise in emergency medical services development and implementation. These experts demonstrate leadership and expertise through involvement in national organizations committed to the improvement of emergency medical services throughout the country. Selection of the Technical Assistance Team is also based on experience in special areas identified by the requesting state. Examples of specialized expertise include experience in the development of legislative proposals, data gathering systems, and trauma systems. Experience in similar geographic and demographic situations, such as rural areas, coupled with knowledge in providing emergency medical services in urban populations is essential.

The Mississippi Bureau of Emergency Medical Services (BEMS), in concert with the Mississippi Governor's Highway Safety Office requested the assistance of NHTSA. NHTSA agreed to utilize its Technical Assistance Program to provide a technical reassessment of the Mississippi statewide EMS program. NHTSA developed a format whereby the EMS Bureau staff coordinated comprehensive briefings on the EMS

system.

The TAT assembled in Jackson, on April 20-22, 2004. For the first day and a half, over 30 presenters from the State of Mississippi provided in-depth briefings on EMS and trauma care, and reviewed the progress since the 1991 Assessment. Topics for review and discussion included the following:

General Emergency Medical Services Overview of System Components

- Regulation and Policy
- Resource Management
- Human Resources and Training
- Transportation
- Facilities
- Communications
- Trauma Systems
- Public Information and Education and Prevention
- Medical Direction
- Evaluation
- Emergency Planning (at the State's request)

The forum of presentation and discussion allowed the TAT the opportunity to ask questions regarding the status of the EMS system, clarify any issues identified in the briefing materials provided earlier, measure progress, identify barriers to change, and develop a clear understanding of how emergency medical services function throughout Mississippi. The team spent considerable time with each presenter so that they could review the status for each topic.

Following the briefings by presenters from the Mississippi Department of Health, the Mississippi State Office of Highway Safety, public and private sector providers, and members of the medical community, the TAT sequestered to evaluate the current EMS system as presented and to develop a set of recommendations for system improvements.

When reviewing this report, please note that the TAT focused on major areas for system improvement. Unlike the State's initial assessment that contained many operational recommendations, several of which were identified as a priority, this report offers fewer yet broader recommendations that the team believes to be critical for continued system improvement.

The statements made in this report are based on the input received. Pre-established standards and the combined experience of the team members were applied to the information gathered. All team members agree with the recommendations as presented.

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ACKNOWLEDGMENTS

The TAT would like to acknowledge the Mississippi Bureau of Emergency Medical Services and the Mississippi State Office of Highway Safety for their support in conducting this assessment.

The TAT would like to thank all of the presenters for being candid and open regarding the status of EMS in Mississippi. Each presenter was responsive to the questions posed by the TAT, which aided the reviewers in their evaluation. Many of these individuals traveled considerable distance to participate.

Special recognition and thanks are extended for the extraordinary efforts of Jim Craig, Director, Office of Health Protection, Mississippi State Department of Health; Alisa Williams, Policy Planner, Office of Emergency Planning and Response, Mississippi State Department of Health; Keith Parker, Director, Mississippi Bureau of EMS/Trauma; their staffs and all the briefing participants for their well-prepared and forthright presentations. In addition, the Team is grateful for the well-organized, comprehensive briefing material sent to the team members in preparation for the reassessment.

Special thanks also to Ron Sennett, Mississippi State Highway Safety Office, for supporting this process and providing special assistance to the TAT while in Mississippi. The Mississippi Chapter of the American Trauma Society is also recognized for their support.

INTRODUCTION

Emergency medical services (EMS) and trauma care for the citizens of Mississippi stands in contrast to the existing health status of the state's population as a whole.

There is a rich history of progress in improving and organizing the system of care available to sick and injured citizens. The state has one of the most mature and well developed information systems of any EMS system in the nation. In support of its trauma system, Mississippi's funding mechanism of capturing a portion of moving motor vehicle violation fines has been a model for many other states.

The Mississippi Department of Health has a vision for EMS that is clearly stated and unambiguous. The staff of the EMS and trauma program are motivated, goal driven and their work is performance-based. In recent years, Mississippi EMS has stepped up to take on the challenges of preparing the state to face the possibility of terrorist threats. Innovative thinking, relevant partnerships, applied technology and a "can do" attitude have created a substantial safety net for the people of Mississippi.

The many accomplishments have been achieved in an environment of some of the poorest public health indicators in the country. Sixty-four percent of families with children are low income or poor (national average 46%). Mississippi has the lowest proportion of high school graduates of any state in the nation. The state is consistently among the top three states in the nation for death rates from motor vehicle crashes. Similarly Mississippi has very high rates of smoking, heart disease deaths and physical inactivity.

Mississippians stand to benefit from continued refinement of a fundamentally sound EMS and trauma care system design. The state needs to fulfill its commitment to fully fund the trauma system, which will result in a decrease of overall health care costs. Tort reform is needed to sustain the specialty physicians that provide care for the most seriously injured patients. The state needs to use its available data to best target limited resources for EMS system improvements. The substantial federal resources currently available for bio-terrorism preparedness should be leveraged to support system infrastructure development that will benefit every patient.

In the final analysis, the continued improvement of the Mississippi EMS and trauma care system will only occur with the support and understanding of the citizens it serves. Public information and education is important to this understanding. Mississippi's EMSC program reaches out to children around the state in the provision of safety education and information about how to use the EMS system. There is no doubt that when the most vulnerable among us need help, the caring professionals of Mississippi's EMS system will be there ready to help.

MISSISSIPPI EMERGENCY MEDICAL SERVICES (EMS)

The TAT revisited the ten essential components of an optimal EMS system that were used in the *State of Mississippi: An Assessment of Emergency Medical Services*, in 1991. These components provided an evaluation or quality assurance report based on 1989 standards. While examining each component, the TAT identified key EMS issues, reviewed the State's progress since the original report, assessed its status, and used the 1997 Reassessment Standards as a basis for recommendations for EMS system improvement.

A. REGULATION AND POLICY

Standard

To provide a quality, effective system of emergency medical care, each EMS system must have in place comprehensive enabling legislation with provision for a lead EMS agency. This agency has the authority to plan and implement an effective EMS system, and to promulgate appropriate rules and regulations for each recognized component of the EMS system (authority for statewide coordination; standardized treatment, transport, communication and evaluation, including licensure of out-of-hospital services and establishment of medical control; designation of specialty care centers; Public Information Education and Relations (PIER) program). There is a consistent, established funding source to adequately support the activities of the lead agency and other essential resources which are necessary to carry out the legislative mandate. The lead agency operates under a single, clear management structure for planning and policy setting, but strives to achieve consensus among EMS constituency groups in formulating public policy, procedures and protocols. The role of any local/regional EMS agencies or councils who are charged with implementing EMS policies is clearly established, as well as their relationship to the lead agency. Supportive management elements for planning and developing effective statewide EMS systems include the presence of a formal state EMS Medical Director, a Medical Advisory Committee for review of EMS medical care issues and state EMS Advisory Committee (or Board). The EMS Advisory Committee has a clear mission, specified authority and representative membership from all disciplines involved in the implementation of EMS systems.

Progress on the 1991 Recommendations

Mississippi has recently passed a secondary safety belt law.

There has been a progressive and appropriate evolution of trauma care legislation leading to initial implementation of the state's trauma care system. This legislation created a permanent trauma system funding source based on moving traffic violations and the tobacco settlement trust fund.

Changes have been made to the EMS and trauma regulations, in part, to reflect updates to national standard curricula for EMS providers.

Status

Mississippi has statutes that describe the state's authority to develop and regulate an EMS and trauma care system. Secondary to the statutes, the state has created EMS and trauma system regulations that describe the relevant operational standards of the system.

The statutes include provisions for system input and monitoring through groups such as the Emergency Medical Service Advisory Council (EMSAC), Mississippi Trauma Advisory Committee (MTAC), and the Medical Direction, Training and Quality Assurance Committee (MDTQA). These groups include broad-based representation from diverse provider types and geographic locations of the state.

Mississippi has made an excellent start in the provision of state funding for its trauma system. Unfortunately, the system is not fully funded and this under funding is creating pressure on the hospitals and physicians who are providing essential services.

There is a well-defined process for creating or amending the EMS and trauma regulations that begins with a relatively informal opportunity for broad stakeholder and constituent input. As dialogue within the relevant advisory groups refines the draft of a new rule, the process moves into a more formal administrative procedures process of the state Board of Health.

The state uses a model for medical direction that appropriately involves physicians in the delivery of pre-hospital emergency medical care. Most physicians serve in medical director roles without compensation. There is currently no system-wide liability protection for medical directors. Similarly there is no specific requirement for medical director training or specialty qualifications.

Mississippi's coroner system is not serving the needs of the trauma care system.

Deaths from injury are not being investigated by medically qualified personnel. The position of Medical Examiner within the Mississippi Department of Public Safety is currently vacant. When local coroners order autopsies, a physician who is not trained in forensic pathology usually performs them. Several physicians presenting to the assessment team agreed that information currently being gathered about trauma deaths is of no value from a system improvement perspective.

A notable gap in the Mississippi EMS legislation is the lack of ability to license and regulate non-transporting EMS organizations. All EMS providers at the EMT Basic level or higher must function under physician medical direction and an affiliation with a transporting ambulance service is mandated. The effect of the current law is that nationally registered EMTs and paramedics working in non-transporting fire departments are only able to function with a first responder scope of practice at the scene of a medical call.

The state currently has no primary safety belt law despite motor vehicle crashes being well-documented as the leading cause of injury death in the state and the third highest in the nation.

Recommendations

- ◆ **BEMS should seek a change in statute to allow for authority to license and regulate non-transporting EMS agencies and personnel.**
- ◆ BEMS should establish requirements for medical directors and provide protection from liability for medical direction services.
- ◆ The Department of Public Safety should establish authority to ensure that autopsies are performed by qualified pathologists for all appropriate cases.
- ◆ **The Department of Public Safety should fill the currently existing position of Chief Medical Examiner. Funding for the medical examiner system will need to be secured.**
- ◆ The Mississippi trauma system and its constituents should seek a legislative change, using trauma registry data, to establish a primary safety belt law.
- ◆ Continue efforts to achieve full funding for uncompensated and under-compensated trauma care. Fund the system adequately so support to out-of-state trauma centers does not negatively impact compensation to in-state centers and providers.

B. RESOURCE MANAGEMENT

Standard

Central coordination and current knowledge (identification and categorization) of system resources is essential to maintain a coordinated response and appropriate resource utilization within an effective EMS system. A comprehensive State EMS plan exists which is based on a statewide resource assessment and updated as necessary to guide EMS system activities. A central statewide data collection (or management information) system is in place that can properly monitor the utilization of EMS resources; data is available for timely determination of the exact quantity, quality, distribution and utilization of resources. The lead agency is adequately staffed to carry out central coordination activities and technical assistance. There is a program to support recruitment and retention of EMS personnel, including volunteers.

Progress on the 1991 Recommendations

Mississippi has made substantive strides in establishing EMS as a comprehensive statewide system.

The availability and capability of prehospital and hospital resources are now known.

Marked progress has been made in field triage of trauma patients to the closest appropriate facility, the dispatch of the closest ambulance regardless of county lines and in the development of a Critical Incident Stress Management (CISM) program.

Status

Paramedic ambulance coverage across the state now includes 98% of the population. However, there are EMS personnel in the state unaffiliated with ambulance services. The system infrastructure to allow efficient access and effective utilization of this essential resource is not in place. There is untapped potential in the EMS non-transporting arena which would benefit the state's EMS system.

The BEMS contracts for mutual aid ambulances provide for surge capacity at state and regional levels. With the appropriate state infrastructure, these resources can be coordinated to meet Benchmark #3 in HRSA's Hospital Bioterrorism Preparedness Grant guidance.

The BEMS possesses knowledge of the resources available within the state to facilitate the coordination of prehospital resources during a major incident.

Recommendations

- ◆ **BEMS should establish a mechanism for nationally registered EMTs and paramedics in non-transport agencies (e.g. fire departments) to be incorporated into the EMS system.**
- ◆ BEMS should require back-up or move-up arrangements within mutual aid agreements that assure effective coverage in areas/counties with limited resources.
- ◆ BEMS should develop a dispatch and communications infrastructure which allows for the active coordination of prehospital resources in the event of a major incident. This should be integrated into a statewide mutual aid program.
- ◆ BEMS should follow through with efforts to establish a program which meets the emotional and psychological needs of EMS and public safety providers adversely affected by a major event.
- ◆ BEMS should further develop the EMS regions within the Mississippi EMS System to maximize coordination of programs established by the state.

C. HUMAN RESOURCES AND TRAINING

Standard

EMS personnel can perform their mission only if adequately trained and available in sufficient numbers throughout the State. The State EMS lead agency has a mechanism to assess current manpower needs and establish a comprehensive plan for stable and consistent EMS training programs with effective local and regional support. At a minimum, all transporting out-of-hospital emergency medical care personnel are trained to the EMT-Basic level, and out-of-hospital training programs utilize a standardized curriculum for each level of EMS personnel (including EMS dispatchers). EMS training programs and instructors are routinely monitored, instructors meet certain requirements, the curriculum is standardized throughout the State, and valid and reliable testing procedures are utilized. In addition, the State lead agency has standardized, consistent policies and procedures for certification (and re-certification) of personnel, including standards for basic and advanced level providers, as well as instructor certification. The lead agency ensures that EMS personnel have access to specialty courses such as ACLS, PALS, BTLIS, PHTLS, ATLS, etc., and a system of critical incident stress management has been implemented.

Progress on the 1991 Recommendations

A statewide dispatcher training program has been implemented.

The Mississippi EMS Information System (MEMSIS) has evolved to be a useful tool for tracking the activities of prehospital providers and organizations.

Paramedic coverage of the state has expanded significantly in terms of both population and land mass covered. A paramedic scholarship program has been created using FLEX funding.

Status

Initial and refresher training for EMT-Basics is available through 16 community colleges and at 23 campuses around the state. Initial and refresher training for paramedics is taught at seven community colleges. The state uses national standard curricula as the basis for training its EMS personnel. All EMTs and paramedics are nationally registered.

Following the most recent revisions to the national standard curriculum for paramedic training, all but one program in the state upgraded to an associate degree level for preparing paramedics. One effect of this change was that paramedic training which had previously been taught exclusively in certificate programs now requires two years to

complete. That led to a one-time drop in the number of paramedics certified in the state during 2002.

At the request of the Board of Health, BEMS undertook an examination of a perceived paramedic workforce shortage. The study demonstrated that, over an eight-year period, the number of paramedics within the system climbed by 43% while call volume rose only 23%. Other indicators, such as ratios of paramedics to the total population, response times of paramedic ambulance services, etc., all support the conclusion that the state currently has an adequate number of paramedics in the system. While the total number of paramedics in the system may be sufficient, the study did not rule out local shortages which are suggestive of workforce distribution problems.

In an effort to support the entry of paramedics into the EMS workforce, the state has established a paramedic scholarship fund using FLEX resources. Other forms of workforce development assistance are available to support EMT-Basic tuition.

The state has a declining number of EMT-Intermediates as a policy decision was made not to continue offering EMT-intermediate training after the most recent curriculum update. BEMS does not currently certify EMS first responders, although this training level is reportedly widely used by fire departments and others who commonly fulfill a first response medical role.

The MEMSIS system is an excellent and well-established resource for monitoring the performance of individual providers at all levels. Not all ambulance services or medical directors are using it as a tool to improve prehospital clinical performance.

There is no state program for the preparation or certification of persons who are EMS instructors. Paramedic training programs are CoAEMSP accredited. Approved courses are at least 1200 hours in length. First time pass rates for EMT-Basics and Paramedics on National Registry of EMTs testing have risen in the past year from 60+% rates to 80+% rates.

In addition to training programs leading to certification or recertification of EMS providers, there are a variety of educational offerings for personnel including a recent focus on bio-terrorism preparedness.

Recommendations

- ◆ BEMS should support the continuation of paramedic training within associate degree programs.
- ◆ BEMS should implement regulations to allow for certification of first responder trained personnel.

- ◆ BEMS should establish minimum qualifications for instructors of all training programs leading to EMS certification.
- ◆ BEMS should continuously monitor workforce and geographic distribution trends for all levels of certified providers in the state.
- ◆ **BEMS should continue with the implementation of the Statewide Performance Improvement Plan [for] Prehospital Care.**
- ◆ **BEMS should begin licensing non-transporting EMS agencies (e.g. fire departments) as a mechanism to facilitate the certification of personnel in other than traditional ambulance service settings.**

D. TRANSPORTATION

Standard

Safe, reliable ambulance transportation is a critical component of an effective EMS system. The transportation component of the State EMS plan includes provisions for uniform coverage, including a protocol for air medical dispatch and a mutual aid plan. This plan is based on a current, formal needs assessment of transportation resources, including the placement and deployment of all out-of-hospital emergency medical care transport services. There is an identified ambulance placement or response unit strategy, based on patient need and optimal response times. The lead agency has a mechanism for routine evaluation of transport services and the need for modifications, upgrades or improvements based on changes in the environment (i.e., population density). Statewide, uniform standards exist for inspection and licensure of all modes of transport (ground, air, water) as well as minimum care levels for all transport services (minimum staffing and credentialing). All out-of-hospital emergency medical care transport services are subject to routine, standardized inspections, as well as spot checks to maintain a constant state of readiness throughout the State. There is a program for the training and certification of emergency vehicle operators.

Status and Progress on the 1991 Recommendations

The BEMS continues a very active program of ambulance inspections, however ambulances in Mississippi are not subjected to mechanical inspections. Some EMS ambulance providers have a strong preventive maintenance program and others do not. There is no state data on ambulance “mission failures” due to mechanical issues.

Response times have not yet been established on a statewide basis although a project to develop these standards exists. There are no State guidelines for response times. Some rural areas have a single ambulance with no backup coverage. In the event that two calls are received simultaneously or the single ambulance has to go on a long distance transfer, the area is uncovered. These areas are generally rural with low call volumes.

The state has 660 licensed ambulances with 137 ambulance services. The state has seven helicopter providers, three of which are based in Mississippi. Helicopters are part of the BEMS inspection program. Advanced Life Support (ALS) is, for the most part, standing order based. Paramedics do not provide coverage in five counties. Mississippi does not have a system for non-transporting first responder paramedics. Paramedics are not permitted to be certified unless they function on an ambulance.

Recommendations

- ◆ All counties in Mississippi should have paramedic level coverage available.
- ◆ **BEMS should assure that arrangements are in place to provide for backup paramedic ambulances in a timely manner throughout Mississippi.**
- ◆ BEMS should develop and implement a program to utilize non-transport EMTs and paramedics.
- ◆ Ambulance services should be encouraged to develop GPS/AVL systems, where appropriate, that will provide vehicle mapping to ambulance dispatch. This will facilitate the dispatch of the closest appropriate ambulance.
- ◆ BEMS should ensure that the MEMSIS data system contains a mapping program that will identify the location and type of emergency responses.
- ◆ BEMS should assure that Mississippi-based EMS helicopters are capable of responding to injury scenes when appropriate.
- ◆ BEMS should require ambulance services to have vehicle preventative maintenance programs.
- ◆ BEMS should complete the development of statewide response time guidelines.
- ◆ BEMS should use MEMSIS to identify and record data on all ambulance vehicle “mission failures.”

E. FACILITIES

Standard

It is imperative that the seriously ill patient be delivered in a timely manner to the closest appropriate facility. The lead agency has a system for categorizing the functional capabilities of all individual health care facilities that receive patients from the out-of-hospital emergency medical care setting. This determination should be free of political considerations, is updated on an annual basis and encompasses both stabilization and definitive care. There is a process for verification of the categorizations (i.e., on-site review). This information is disseminated to EMS providers so that the capabilities of the facilities are known in advance and appropriate primary and secondary transport decisions can be made. The lead agency also develops and implements out-of-hospital emergency medical care triage and destination policies, as well as protocols for specialty care patients (such as severe trauma, burns, spinal cord injuries and pediatric emergencies) based on the functional assessment of facilities. Criteria are identified to guide interfacility transport of specialty care patients to the appropriate facilities. Diversion policies are developed and utilized to match system resources with patient needs; standards are clearly identified for placing a facility on bypass or diverting an ambulance to another facility. The lead agency has a method for monitoring if patients are directed to appropriate facilities.

Status and Progress on the 1991 Recommendations

The Mississippi Trauma Care System Plan has been written, implemented, and serves to match an appropriate response to the needs of patients. The plan serves to minimize the effect of political and geographic boundaries and get the patient to the closest, most appropriate trauma hospital at the right time.

Categorization of emergency medical resources has been accomplished through the Mississippi Trauma Care System including seven trauma care regions:

1. Delta
2. North
3. Central
4. East Central
5. Southwest
6. Southeast
7. Coastal

Each of these trauma care regions has formed a board to distribute reimbursement from the state, approve treatment protocols, determine triage criteria, and determine patient destination. Five trauma care regions use the Mississippi model trauma triage protocol, while two regions have developed their own.

Based on a I, II, III, IV scale, each participating hospital is rated according to its trauma care services. This facilitates the right patient getting to the right hospital at the right time. Currently, there are two level I's (including one in Memphis, TN), five level II's, eight level III's, and 51 Level IV's. A formal trauma center inspection process exists with a three-year cycle for re-inspection.

It is evident to members of the BEMS staff that some level III and IV hospitals do not participate at the level they could achieve (e.g., Level II and III). Other hospitals have elected not to participate in the trauma care system at all, which results in some counties without a trauma hospital. There is potential for all 92 hospitals with an ED to participate in the Mississippi trauma system.

A web-based Hospital Status System has been developed that keeps track of which departments of which facilities are open or closed (ED, OR, Radiology). This tool has voluntary hospital participation and was designed to assist medical control hospitals in making bypass decisions. Using this system, BEMS is able to obtain and report back to each hospital on a monthly basis regarding how many times each hospital was closed, the reason, and for how long.

Of 113 hospitals in the state, 67 are JCAHO accredited, 46 are not. The state has regulatory requirements said to be more stringent than JCAHO. Critical access hospitals exist and must transfer patients within 96 hours of admission to a higher level of care.

Patient triage and transport protocols have been developed and implemented and are very helpful in distributing the EMS patient volume appropriately. In the early 1990's, the University Hospital was on divert status more often than it was open. Today, the University Hospital is on divert only a few hours per month and only very rarely on divert for trauma patients. Not all neurosurgical or other subspecialty groups participate in the care of injured patients resulting in a shortage of services in some areas.

The state has designated 17 WMD Centers of Excellence and 11 Supportive Centers. These centers are intended to provide a surge capacity of 500 patients per region and stockpile medications for 500 patients per region. They also provide: standardized protective clothing, standardized communications, and standardized training.

BEMS-owned portable mass decontamination units are pre-positioned at the 17 WMD Centers of Excellence. A WMD planning document for hospitals is being completed by BEMS.

Recommendations

- ◆ BEMS should ensure the participation of all 92 acute care hospitals in the Mississippi trauma care system.
- ◆ **The Department of Health should identify additional funding to encourage subspecialty physician participation in the care of injured patients. The current lack of neurosurgery participation in some hospitals and complete lack of neurosurgery capability in other hospitals severely limits the overall capability and effectiveness of the Mississippi trauma care system. Recruiting neurosurgeons needs to be a trauma system priority.**
- ◆ BEMS should ensure that all hospitals participate in the trauma system at the maximum level of which they are capable.
- ◆ BEMS should require participation in the Hospital Status System as a mandatory requirement for all Mississippi hospitals. All non-availability of hospital resources should be declared using this system.
- ◆ BEMS should encourage all trauma care regions to use uniform statewide transport and triage protocols, as this will facilitate data reliability and the ability to improve the protocols over time.
- ◆ BEMS should encourage Level I and II hospitals to have American College of Surgeons (ACS) consultation visits as they mature and begin to exceed Mississippi trauma care system standards.
- ◆ All hospitals receiving injured patients should contribute data to the statewide trauma registry.

F. COMMUNICATIONS

Standard

A reliable communications system is an essential component of an overall EMS system. The lead agency is responsible for central coordination of EMS communications (or works closely with another single agency that performs this function) and the state EMS plan contains a component for comprehensive EMS communications. The public can access the EMS system with a single, universal emergency phone number, such as 9-1-1 (or preferably Enhanced 9-1-1), and the communications system provides for prioritized dispatch. There is a common, statewide radio system that allows for direct communication between all providers (dispatch to ambulance communication, ambulance to ambulance, ambulance to hospital, and hospital to hospital communications) to ensure that receiving facilities are ready and able to accept patients. Minimum standards for dispatch centers are established, including protocols to ensure uniform dispatch and standards for dispatcher training and certification. There is an established mechanism for monitoring the quality of the communication system, including the age and reliability of equipment.

Progress on the 1991 Recommendations:

BEMS conducted a comprehensive review of the state's communication systems. Recommendations accompanying this state communications assessment were determined to be inappropriate for implementation in Mississippi.

BEMS has taken a strong leadership role in developing a statewide communication system and is actively exploring non-terrestrial options.

BEMS has not filed its communication plan with the FCC.

Status

The State of Mississippi passed legislation adopting the Emergency Telecommunications Training Program and establishing the Board of Emergency Telecommunications Standards and Training. As a result there have been substantive improvements in the 911 system. All but four counties have 3 digit 911 access to Public Safety Answering Points (PSAPs). It should be noted, however, that many agencies still maintain independent dispatch centers requiring the hand off and multi-agency involvement in the dispatch of an incident. Even so, the requirement of Association of Public Safety Communications Officers (APCO) dispatcher certification of all dispatchers has provided standardized training which facilitates the transfer of the

incident between centers.

The Department of Health has taken the lead role in exploring satellite communications for the state. The system currently being explored has the potential to meet the radio communication needs of almost all government agencies. The technology has the ability to close all the gaps identified in past and current assessments of prehospital communication needs. A pilot program is near implementation in the Delta Region in northwestern Mississippi and all hospitals are currently funded to purchase and install satellite communications.

Traditional EMS radio networks have fallen into decline. Cellular and other forms of communications have become more prevalent.

Recommendations

- ◆ BEMS should continue to pursue the promising benefits of satellite technology. Because of the unproven capacity of the technology, BEMS should proceed carefully and assure that the system will meet the needs during a major incident.
- ◆ BEMS should reconsider the support of traditional EMS radio communications and incorporate those networks into the EMS communications infrastructure as appropriate.

G. PUBLIC INFORMATION, EDUCATION AND PREVENTION

Standard

To effectively serve the public, each State must develop and implement an EMS public information, education and prevention (PIEP) program. The PIEP component of the State EMS plan ensures that consistent, structured PI&E programs are in place that enhance the public's knowledge of the EMS system, support appropriate EMS system access, demonstrate essential self-help and appropriate bystander care actions, and encourage injury prevention. The PIEP plan is based on a needs assessment of the population to be served and an identification of actual or potential problem areas (i.e., demographics and health status variable, public perceptions and knowledge of EMS, type and scope of existing PIEP programs). There is an established mechanism for the provision of appropriate and timely release of information on EMS-related events, issues and public relations (damage control). The lead agency dedicates staffing and funding for these programs, which are directed at both the general public and EMS providers. The lead agency enlists the cooperation of other public service agencies in the development and distribution of these programs, and serves as an advocate for legislation that potentially results in injury/illness prevention.

Status and Progress on the 1991 Recommendations

The Mississippi EMS system has made considerable progress in the area of public information. Several specific web sites have been developed in the area of trauma, EMSC, and the EMS system. These sites provide information about trauma regions, MTAC, state EMS operations including agendas, minutes, policies, ambulance licensing and other program issues. The web sites contain information about trauma hospital designation and open and closed status. Inventory information regarding EMS and hospital resources is available. Certain areas of the sites are restricted to permitted users. These sites are relatively new and are works in progress. It was unclear as to the number of regular users and the effectiveness of information transfer.

BEMS has some limited resources available from the Mississippi Health Department Communications and Public Relations office for media assistance. It appears that media assistance is used infrequently and is usually part of a grant funded project.

Several injury prevention projects have been established (Risk Watch, Safety Belts, Child Safety Seats etc.) A large RV has been acquired as a mobile training vehicle. This vehicle is staffed by BEMS and circulates through out the state. A strong relationship continues between Highway Safety and BEMS.

Recommendations

- ◆ BEMS should ensure that every EMS grant contains funding for public information and education.
- ◆ **BEMS should develop and implement state goals for EMS public information and education. Include injury prevention.**
- ◆ BEMS should develop a campaign to inform the public and policy makers on the trauma system and the improvements to the EMS system.
- ◆ BEMS should encourage all EMS providers to assist the Mississippi Department of Health with public health education initiatives.
- ◆ All EMS and fire departments should assist with injury prevention education.
- ◆ BEMS should develop and disseminate a health education message of the month.

H. MEDICAL DIRECTION

Standard

EMS is a medical care system that involves medical practice as delegated by physicians to non-physician providers who manage patient care outside the traditional confines of office or hospital. As befits this delegation of authority, the system ensures that physicians are involved in all aspects of the patient care system. The role of the State EMS Medical Director is clearly defined, with legislative authority and responsibility for EMS system standards, protocols and evaluation of patient care. A comprehensive system of medical direction for all out-of-hospital emergency medical care providers (including BLS) is utilized to evaluate the provision of medical care as it relates to patient outcome, appropriateness of training programs and medical direction. There are standards for the training and monitoring of direct medical control physicians, and statewide, standardized treatment protocols. There is a mechanism for concurrent and retrospective review of out-of-hospital emergency medical care, including indicators for optimal system performance. Physicians are consistently involved and provide leadership at all levels of quality improvement programs (local, regional, state).

Progress on the 1991 Recommendations

Medical direction has been mandated for all EMS transport agencies, including EMT-Basic level services.

The Medical Direction, Training and Quality Assurance (MDTQA) Committee participates in statewide medical direction issues.

Medical control, on-line and off-line, is available throughout the state.

Status

At the state level, there is currently not a state EMS medical director, though there are plans to appoint one. Nevertheless, some physicians provide significant input to the processes of administering the state's EMS system.

The Medical Direction, Training, and Quality Assurance (MDTQA) Committee provides one avenue for physician input to the state's EMS system. The committee addresses many issues germane to the clinical quality of the system.

Regional district EMS medical direction exists in three areas of the state. In the others, there is little or no coordination among EMS medical directors within their respective regions. Thus, protocols could conceivably differ remarkably among EMS agencies in

those areas. Due, in part, to lack of regional organization it is quite possible for EMS medical directors of individual agencies to function in relative isolation from the rest of the state's EMS system. While there may be opportunities for physician involvement at the state level, those appear to be somewhat limited. Furthermore, such opportunities are unlikely to attract many EMS medical directors by virtue of time and travel distance required to participate.

Local EMS medical directors are integral to the system even though they play their roles with varying intensity. For example, while the medical director of a hospital-based ambulance service may have intimate knowledge of individual EMS providers and be very active in the day-to-day operations of the system, another medical director may not have routine interaction with his or her service and its EMS providers. Furthermore, in some cases local medical direction has been deferred to one of the functioning district medical directors. In the case of the central district, this entails a single EMS medical director responsible for many counties with subsequently limited working familiarity with all the EMS providers under his authority.

EMS medical directors enjoy substantial authority to regulate the practice of EMS providers. They are responsible for annual verification of EMT and paramedic suitability for continued practice within the system. Such responsibility and authority is appropriate given that EMTs' and paramedics' practices are enabled by their subordinate relationship with a physician medical director. It is not clear to what extent, if any, EMS medical directors are protected from litigation that might result from denial or withdrawal of authorization of an EMS provider's clinical privileges.

A number of issues currently adversely affect the provision of EMS medical direction in Mississippi. Among them is the apparent lack of availability of local medical direction in some communities. This may be due to a legitimate lack of qualified physicians in some communities. In other cases, there may be a lack of physician willingness to participate for various reasons.

There is currently not a uniform process of credentialing or educating EMS medical directors. Thus, there is no assurance of each medical director's working knowledge of the EMS system beyond his or her affiliation with a local ambulance service.

There is apparent concern for potential liability issues among some EMS medical directors. This has at least two potential effects. First, it may dissuade otherwise interested physicians from taking a more active role in the EMS system. Second, in at least one case, concern about changing the nature of the relationship with EMS agencies, and the potential for liability, is a factor in not seeking appropriate compensation for bona fide services provided. This could mean that a qualified and enthusiastic physician limits his/her time and effort devoted to the EMS system.

The entirety of the EMS system does not benefit from medical direction. In Mississippi medical direction is currently intended to play an overt role in prehospital provider

credentialing, delivery of care by transporting services, and in EMS education. However, it has no current state-mandated role in first responder activities. The BEMS, or any other state governmental body, does not oversee this segment of the EMS system.

Recommendations

- ◆ **BEMS should appoint a state EMS medical director who has overall responsibility and authority to oversee the state's EMS medical direction processes.**
- ◆ **BEMS should establish regional EMS medical directors throughout the state. The regional EMS medical director should be responsible, for example, for developing communication among local service medical directors, promoting uniformity among EMS protocols in the region, and representing regional issues at state-level forums.**
- ◆ BEMS should develop an education and credentialing program for EMS medical directors at all levels.
- ◆ BEMS should facilitate development of EMS medical directors through work with the state hospitals' emergency department staffs.
- ◆ BEMS should seek and implement solutions that protect physicians from potential liability incurred during fulfillment of their duties as EMS medical directors.
- ◆ BEMS should enable EMS medical directors to authorize the practice of EMS providers working in non-transport venues.

I. TRAUMA SYSTEMS

Standard

To provide a quality, effective system of trauma care, each State must have in place a fully functional EMS system; trauma care components must be clearly integrated with the overall EMS system. Enabling legislation should be in place for the development and implementation of the trauma care component of the EMS system. This should include trauma center designation (using ACS-COT, ACEP, APSA-COT and/or other national standards as guidelines), triage and transfer guidelines for trauma patients, data collection and trauma registry definitions and mechanisms, mandatory autopsies and quality improvement for trauma patients. Information and trends from the trauma registry should be reflected in PIER and injury prevention programs. Rehabilitation is an essential component of any statewide trauma system and hence these services should also be considered as part of the designation process. The statewide trauma system (or trauma system plan) reflects the essential elements of the Model Trauma Care System Plan.

Status and Progress on the 1991 Recommendations

In 1991, BEMS was designated as the lead agency to develop a trauma care plan for the state. BEMS then implemented a statewide trauma registry originally in 5 hospitals strategically located throughout the state. Today, each hospital participating in the trauma care system collects data and submits it to BEMS, providing the basis for decisions regarding trauma system development. A 17-member Trauma Care Task Force was established in 1997 and presented recommendations to the state in a formal report. Based on this report, the legislature passed legislation authorizing BEMS to develop a statewide trauma care system. A permanent source of revenue for the trauma care system was established at the same time through a \$5 assessment on moving traffic violations, creating the Trauma Care Trust Fund.

Hospital participation in the statewide trauma care system is voluntary. In 1998, the Mississippi Trauma Advisory Committee was developed as a subcommittee of the EMS Advisory Committee and developed the Mississippi Trauma Care Regulations which describe the requirements for regional plan development and the trauma center designation process.

In 1999, the legislature added \$6 million to the Trauma Care Trust Fund from the state tobacco settlement resulting in a total available funding of approximately \$8 million per year. The funds were first distributed in 2000 and divided with 70% to trauma hospitals and 30% to eligible physicians. Even though the trauma system infrastructure is “in

very good shape,” at some point the hospitals and care providers will need to be adequately compensated.

BEMS requires all designated trauma hospitals to participate in the state trauma registry system in order to facilitate four objectives: performance improvement, hospital operations, injury prevention, and medical research. The registry assists in the identification of injury control issues at the local, regional, and state levels. The state registry is designed to collect information on only those patients with severe injuries. It is also intended to identify system issues such as over and under-triage.

The overall incidence of trauma and trauma mortality rates for specific injuries in Mississippi are unknown and must be identified in order to determine the effectiveness of the trauma care system.

Recommendations

- ◆ **The Mississippi Legislature should fully fund the administration and uncompensated care costs of the trauma care system.**
- ◆ All Mississippi hospitals should be involved in the statewide trauma care system. Additionally, each trauma hospital should participate at a level commensurate with its resources and capabilities.
- ◆ BEMS should continue to encourage trauma hospitals to collect and submit more registry data than the required minimum. This would include both a larger data set and a larger spectrum of injured patients. The ultimate goal is to collect all pertinent clinical and administrative data on each person injured within the borders of Mississippi (no matter their degree of injury or hospital destination).
- ◆ BEMS should proceed with its plans to implement a new statewide trauma registry.
- ◆ BEMS should submit trauma patient data from each trauma hospital and the state trauma registry to the National Trauma Data Bank.
- ◆ **BEMS should focus efforts on performance improvement statewide in order to continue maturation of the trauma care system.**
- ◆ The Mississippi Legislature should support medical tort reform in order to protect the existing healthcare provider workforce and attract more participant physicians.
- ◆ BEMS should develop a method to identify and track all the trauma patients that originate within Mississippi.

J. EVALUATION

Standard

A comprehensive evaluation program is needed to effectively plan, implement and monitor a statewide EMS system. The EMS system is responsible for evaluating the effectiveness of services provided victims of medical or trauma related emergencies, therefore the EMS agency should be able to state definitively what impact has been made on the patients served by the system. A uniform, statewide out-of-hospital data collection system exists that captures the minimum data necessary to measure compliance with standards (i.e., a mandatory, uniform EMS run report form or a minimum set of data that is provided to the state); data are consistently and routinely provided to the lead agency by all EMS providers and the lead agency performs routine analysis of this data. Pre-established standards, criteria and outcome parameters are used to evaluate resource utilization, scope of services, effectiveness of policies and procedures, and patient outcome. A comprehensive, medically directed, statewide quality improvement program is established to assess and evaluate patient care, including a review of process (how EMS system components are functioning) and outcome. The quality improvement program should include an assessment of how the system is currently functioning according to the performance standards, identification of system improvements that are needed to exceed the standards and a mechanism to measure the impact of the improvements once implemented. Patient outcome data is collected and integrated with health system, emergency department and trauma system data; optimally there is linkage to databases outside of EMS (such as crash reports, FARS, trauma registry, medical examiner reports and discharge data) to fully evaluate quality of care. The evaluation process is educational and quality improvement/system evaluation findings are disseminated to out-of-hospital emergency medical care providers. The lead agency ensures that all quality improvement activities have legislative confidentiality protection and are non-discoverable.

Progress on the 1991 Recommendations

The Mississippi EMS Information System has been developed.

Two committees were assigned to address statewide quality assurance issues.

Major trauma patients can be tracked through the trauma registry.

A statewide prehospital care performance improvement plan has been developed.

Status

Mississippi has implemented the Mississippi EMS Information System (MEMSIS). Development, implementation, maintenance, and ongoing improvement of MEMSIS are extraordinary accomplishments, and MEMSIS is a model for other state EMS systems. This comprehensive system currently holds nearly 3,800,000 records. The data from every patient care record in the state has been electronically submitted to MEMSIS since 1999. Thus, the system stands as a powerful and robust tool for evaluation of EMS. Several integrated reports enable local EMS agencies to query the system with regard to their data. Furthermore, the Bureau of EMS provides periodic reports to EMS agencies using MEMSIS data. Custom reports are possible by locally converting MEMSIS data to a familiar database format or through the Bureau. Two important current limitations of the system are its lack of linkage to the crash data system and to hospital emergency department registries or discharge information.

The trauma registry is another potential source of information about the EMS system. Unfortunately, the current registry is cumbersome to query, greatly limiting its utility for evaluation efforts.

Local EMS agencies are required to appoint a quality improvement officer. Generally, he or she shares information with the EMS medical director and helps to coordinate efforts to improve local EMS quality. However, there is not ongoing regional or statewide guidance to local EMS agencies to facilitate evaluation or quality improvement. Thus, there is no assurance that evaluation not occurring on a statewide basis is at least occurring locally.

There has been recent impetus to pursue some focused evaluations of EMS structures and processes in Mississippi. These have included analyses of personnel allocations and response times.

A familiar limitation of the EMS system is its inability to describe patients' experiences throughout the entire illness or injury event. Information from hospitals is lacking, with the exception of that contained within the trauma registry. While information might be obtainable with regard to a specific case during a review process, even limited outcome data for most EMS patients is not routinely available.

The Bureau of EMS has developed a statewide performance improvement plan for prehospital care. Implementation of that plan is in a fledgling stage. Its core includes requirements for local EMS agencies to participate in performance improvement initiatives and monitoring tracer conditions. It lacks specificity, however, with regard to structural, process, and outcome elements of the system that will be evaluated on a continual basis and how those evaluations will proceed.

Recommendations

- ◆ **The Mississippi Legislature should provide the necessary statutory and/or regulatory changes to generate reliable feedback from EMS-receiving hospitals, to EMS agencies, with specific patient outcome data, in accordance with quality improvement and health information privacy standards.**
- ◆ BEMS should expand the membership of the Statewide Performance Improvement Committee to involve more diverse stakeholders, including EMS medical directors, hospital administrators, laypersons, and possibly others.
- ◆ **BEMS should expedite implementation of sustained evaluation efforts in focused areas of structure, processes and outcomes. Select tracer conditions or important elements of those three areas and commence.**
- ◆ **BEMS should expedite implementation of the Statewide Performance Improvement Plan [for] Prehospital Care to the extent necessary to ensure implementation of continual evaluation programs at local and regional EMS levels.**
- ◆ BEMS should require local EMS agencies to submit evidence of their evaluation and performance improvement initiatives on periodic bases.
- ◆ BEMS should continue to adapt and integrate MEMSIS and the state trauma registry to answer specific questions with regard to the EMS and trauma care systems.
- ◆ BEMS should pursue funding for a Crash Outcome Data Evaluation System (CODES) project to facilitate effective linkage for databases related to motor vehicle crash injuries.

K. EMERGENCY PLANNING

Status:

Mississippi is moving ahead with its emergency planning efforts. An example presented to the TAT to demonstrate the effectiveness of the Department of Health was the inoculation of 6000 citizens against meningitis within 48 hours during a snowstorm in northern Mississippi. The commitment of health care providers within Mississippi is not in doubt.

Mississippi has responded to federal grant opportunities from the Department of Justice, Health Resources and Services Administration, and the Centers for Disease Control to improve disaster capabilities.

There exists a state response team led by Emergency Response Coordinators (ERC) from the Mississippi Department of Health that is responsible for all hazards, but is primarily responsible for biological hazards. It has been recognized at the state level that security plans are lacking and will be a challenge to implement. A new chemical lab has been created. Surge capacity has been developed in each region and medical stockpiles will be completed in May 2004. Plans are being developed for special needs patient shelters. A home health template has been developed to identify individuals dependent on home health nursing in order to support these individuals during a disaster.

Fifty-six ambulances distributed across the state are contracted to BEMS for use during a disaster. The care providers on these ambulances are the best trained in the state for response to WMD events. Efforts are underway to develop a Mississippi Disaster Medical Assistance Team (DMAT).

Communication with the Choctaw Nation occurs weekly regarding its needs and involvement in state emergency planning.

The Health Alert Network is a comprehensive state tool for improving communication regarding threats and responses to these threats. The network includes a call down system, "blast fax", satellite radio, a videoconferencing system, and bioterrorism seminars.

Recommendations

- ◆ Mississippi government should develop security plans and implement security measures to protect state assets from terrorist threats.

- ◆ The Department of Health should develop and participate in local, regional, state, and multi-state mass casualty drills and exercises.
- ◆ The Department of Health should support local efforts to create a Mississippi DMAT team.
- ◆ **The Department of Health should continue efforts to be able to respond to all threats with resources from within the state while integrating responses with neighboring states and the military.**
- ◆ The Department of Health should be more proactive in involving the military in Mississippi WMD planning and preparedness.
- ◆ The Department of Health should develop a strategy for ongoing funding when federal support for disaster preparedness diminishes in the future.
- ◆ **BEMS should leverage planning and resources developed for emergency disaster response to provide infrastructure that can be used on a daily basis by EMS and trauma care system providers.**

L. CURRICULUM VITAE

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ORGANIZATIONS/APPOINTMENTS

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Emergency Medical Technician – Paramedic, State of California
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ORGANIZATIONS/APPOINTMENTS

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Pennsylvania Emergency Health Services Council
Medical Advisory Committee
EMSI Regional EMS Council
Medical Direction Committee
National Association of EMS Physicians
Chair, Program Committee; Board of Directors
Society of Academic Emergency Medicine Committee
Natural Affairs Committee
American College of Emergency Physicians
American Public Health Association
Editorial Board, Assistant Editor
Annals of Emergency Medicine
Principal Investigator
EMS Agenda for the Future
EMS Agenda for the Future Implementation Guide
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ORGANIZATIONS/APPOINTMENTS

State of California, EMS Authority Director's Trauma Advisory Committee

Emergency Medical Services Administrators' Association of California, Past President

State of California EMS Authority EMT Regulation Development Task Force

Los Angeles County EMS Commission Prehospital Care Subcommittee Staff

Los Angeles County Ambulance Licensing Commission, Chairperson

Los Angeles City Fire Department Medical Advisory Committee

Southern California Emergency Medical Services Administrators Association, President

Northern California Emergency Medical Care Council, Board of Directors

Executive Board Member, and Secretary/Treasurer

California Heart Association, Chico, Board of Directors

Butte County Emergency Medical Care Committee, Member

State of California, Department of Public Health, Northern California Sudden Infant

Death Syndrome Advisory Committee, Chairperson

California Conference of Local Health Officers, EMS Subcommittee

Los Angeles County Paramedic Communications System Manager

Northern California Emergency Medical Care Council Communication System

Technical Advisor

CONSULTANT

California State Department of Public Health, Sudden Infant Death Syndrome

City and County of San Francisco, Department of Health

County of Los Angeles, Paramedic Training

Stanford University Medical Center & Foothill Community College

Crafton Hills Community College, ICEMA Region

Orange County, Emergency Medical Services

Los Angeles County EMS Team Leader for on-site review team member

Base Hospital review team chairperson

Santa Barbara County EMS (Lockheed Corporation, Space Shuttle Operations

Vandenberg Air Force Base)

Santa Barbara County EMS

Saddleback Community College Paramedic Education, design and Implementation

USDOT, NHTSA Technical Assistance Team, Member, State of Mississippi

USDOT, NHTSA Development of Trauma Systems

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ORGANIZATIONS/APPOINTMENTS

American College of Surgeons Committee on Trauma, ATLS Subcommittee,
Chair, 2003-
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Member, 1999-
Madigan Army Medical Center, Tacoma, Washington, Staff Surgeon,
Surgical Chief, ICU
47th Combat Support Hospital, Saudi Arabia and Iraq, Chief, Trauma Surgery
Inova Fairfax Hospital, Falls Church, Virginia, Vice Chief, Trauma Services
U.S. Public Health Service, Division of Trauma and Emergency Medical Systems,
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Director of Trauma Research
USUHS, Division of Trauma and Combat Surgery, Department of Surgery, Chief
National Capital Area Medical Simulation Center, Surgical Simulation Laboratory,
Director
USUHS, Professor of Surgery 2002-
Oregon Health Sciences University, Clinical Associate Professor of Surgery, 2002-
Editorial Board, Emergency War Surgery, 2001-
NATO Handbook, Third United States Revision
Society of Apothecaries of London, Examiner, 1999-
Diploma in the Medical Care of Catastrophes
Journal of Trauma, Senior Reviewer, 1999-
Program Committee, Medicine Meets Virtual Reality, 2000-2003
HRSA Ad Hoc Committee to write Model Trauma Care System Plan, 1992, 2003
Institute of Medicine Committee on Vision for Space Medicine Beyond Earth Orbit,
Member 1999-2001
Site Reviewer, American College of Surgeons, Verification Review Committee, 2004-
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Past Member Clearinghouse Management Committee

New England EMS Council

Executive Committee

Vermont Trauma System Development Committee

Co-Chair

EMS Agenda for the Future

Co-Chair

EMS Agenda for the Future Implementation Guide Committee Member

Vermont State Firefighters Association

Essex Rescue, EMT-I Captain

Health Care Finance Administration Negotiated Rule Making, Committee Member

DOT/NHTSA EMS Assessment Program, Technical Assistance Team, Member, States of Delaware, Texas, and North Dakota

DOT/NHTSA EMS Reassessment Program, Member, States of Colorado, Alaska and

Connecticut National Scope of Practice Model Project – Principal Investigator

American College of Surgeons – Trauma System Assessment Team Member

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DOT, National Highway Traffic Safety Administration
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ORGANIZATIONS/APPOINTMENTS

National Association of State EMS Directors (1979-1996)

Past President

Past Chairman, Government Affairs Committee

National Association of EMS Physicians, Member

American Medical Association,

Commission on Emergency Medical Services (1982-87)

American Trauma Society

Founding Member, Past Speaker House of Delegates

ASTM Committee F.30 on Emergency Medical Services

Institute of Medicine/National Research Council

Pediatric EMS Study Committee, Member

Committee Studying Use of Heimlich Maneuver on Near Drowning Victims,
Member

World Association on Disaster and Emergency Medicine

Executive Committee, Member

Editorial Reviewer for *Prehospital and Disaster Medicine*